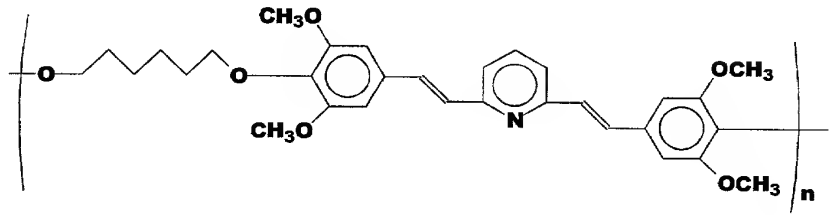
WHAT IS CLAIMED IS:

Polymer 1

1. A composition of matter comprising a polymer of the general structure:



C/R2/D A/R1/B E/R3/F

$-(CH_2)_x$-/-$O(CH_2)_x$-/-$O(CH_2)_xO$-

wherein

the R1 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R2 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R3 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

wherein bonds A and B may independently be either ortho, meta or para with respect to the pyridyl nitrogen;

wherein bonds C and D may be either ortho, meta or para with respect one another; and

wherein bonds E and F may be either ortho, meta or para with respect one another;

wherein Y may be a moiety selected from the group consisting of $-(CH_2)_x$-,$-(CH_2)_xO$-, $-O(CH_2)_x$ – and $-O(CH_2)_xO$- wherein x is an integer in the range of 1 to 15 inclusive; and

wherein n is an integer greater than 1.

2. A composition according to claim 1 wherein at least one R2 substituent is a methoxy group.

3. A composition according to claim 1 wherein at least two R2 substituents are methoxy groups.

4. A composition according to claim 1 wherein at least one R3 substituent is a methoxy group.

5. A composition according to claim 1 wherein at least two R3 substituents are methoxy groups.

6. A composition according to claim 1 wherein vinyl linkage A attaches at a position ortho to the pyridyl nitrogen.

7. A composition according to claim 1 wherein vinyl linkage B attaches at a position ortho to the pyridyl nitrogen.

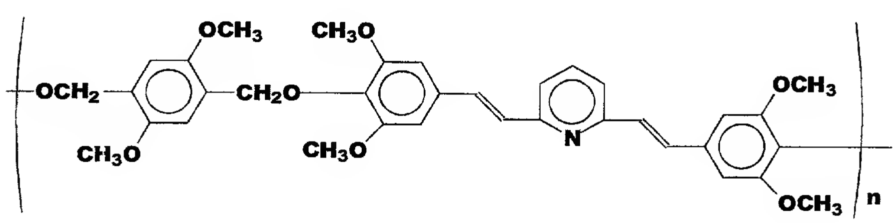
8. A composition according to claim 1 wherein vinyl linkage A attaches at a position para to the pyridyl nitrogen.

9. A composition according to claim 1 wherein vinyl linkage B attaches at a position para to the pyridyl nitrogen.

10. A composition according to claim 1 wherein x is an integer in the range of 1 to 6 inclusive.

<u>Polymer 2</u>

11. A composition of matter comprising a polymer of the general structure:



R4 C/R2/D A/R1/B E/R3/F

$-(CH_2)_x-/-O(CH_2)_x-/-O(CH_2)_xO-$

wherein

the R1 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R2 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R3 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R4 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

wherein bonds A and B may be either ortho or para with respect to the pyridyl nitrogen;

wherein bonds C and D may independently be either ortho, meta or para with respect one another;

wherein bonds E and F may be either ortho, meta or para with respect one another;

wherein bonds G and H may be either ortho, meta or para with respect one another;

wherein Y may be a moiety selected from the group consisting of $-(CH_2)_x-$,$-(CH_2)_xO-$, $-O(CH_2)_x-$ and $-O(CH_2)_xO-$ wherein x is an integer in the range of 1 to 15 inclusive;

wherein Z may be a moiety selected from the group consisting of $-(CH_2)_x-$,$-(CH_2)_xO-$, $-O(CH_2)_x-$ and $-O(CH_2)_xO-$ wherein x is an integer in the range of 1 to 15 inclusive; and

wherein n is an integer greater than 1.

12. A composition according to claim 11 wherein at least one R2 substituent is a methoxy group.

13. A composition according to claim 11 wherein at least two R2 substituents are methoxy groups.

14. A composition according to claim 11 wherein at least one R3 substituent is a methoxy group.

15. A composition according to claim 11 wherein at least two R3 substituents are methoxy groups.

16. A composition according to claim 11 wherein at least one R3 substituent is a methoxy group.

17. A composition according to claim 11 wherein at least two R3 substituents are methoxy groups.

18. A composition according to claim 11 wherein vinyl linkage A attaches at a position ortho to the pyridyl nitrogen.

19. A composition according to claim 11 wherein vinyl linkage B attaches at a position ortho to the pyridyl nitrogen.

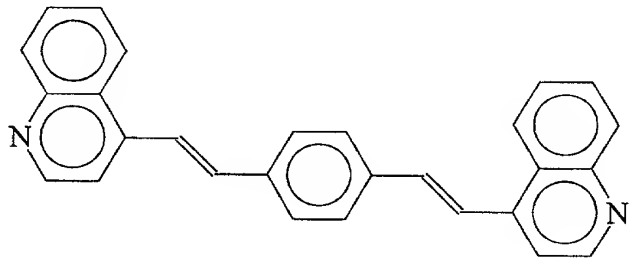
20. A composition according to claim 11 wherein vinyl linkage A attaches at a position para to the pyridyl nitrogen.

21. A composition according to claim 11 wherein vinyl linkage B attaches at a position para to the pyridyl nitrogen.

22. A composition according to claim 11 wherein x is an integer in the range of 1 to 6 inclusive.

Oligomers 1, 2, 3 & 4

23. A composition of matter comprising an oligomer of the general structure:



R3/R2 C A R1 B D R4/R5

wherein

the R1 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R2 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R3 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R4 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R5 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

wherein bonds A and B may independently be either ortho, meta or para from one another;

wherein bond C may be either ortho, meta or para with respect to the respective quinoyl nitrogen; and

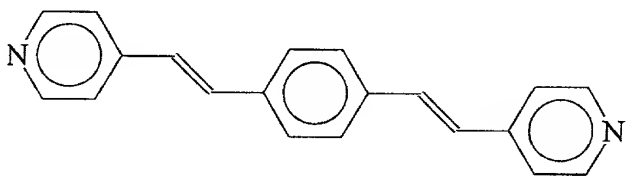
wherein bond D may be either ortho, meta or para with respect to the respective quinoyl nitrogen.

24. A composition according to claim 23 wherein at least one R1 substituent is a methoxy group.

25. A composition according to claim 23 wherein at least two R1 substituents are methoxy groups.

<u>Oligomer 5, 6, 7 & 8</u>

26. A composition of matter comprising an oligomer of the general structure:



R2 C A R1 B D R3

wherein

the R1 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R2 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R3 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

wherein bonds A and B may independently be either ortho, meta or para from one another;

wherein bond C may be either ortho, meta or para with respect to the respective pyridyl nitrogen; and

wherein bond D may be either ortho, meta or para with respect to the respective pyridyl nitrogen.

27. A composition according to claim 26 wherein at least one R1 substituent is a methoxy group.

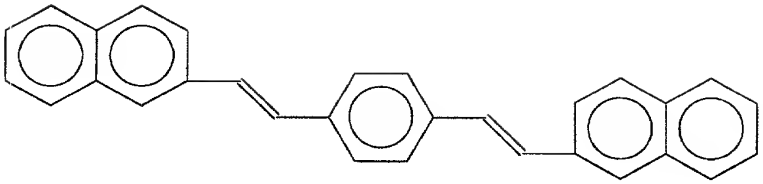
28. A composition according to claim 26 wherein at least two R1 substituents are methoxy groups.

29. A composition according to claim 26 wherein at least one R2 substituent is a methyl group.

30. A composition according to claim 26 wherein at least one R3 substituent is a methyl group.

Oligomers 9 & 10

31. A composition of matter comprising an oligomer of the general structure:



R3/R2 C A R1 B D R4/R5

wherein

the R1 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R2 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R3 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R4 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R5 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

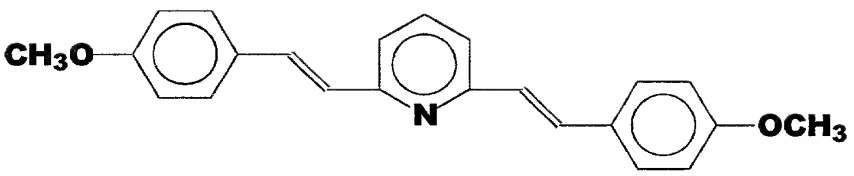
wherein bonds A and B may be either ortho, meta or para from one another.

32. A composition according to claim 31 wherein at least one R1 substituent is a methoxy group.

33. A composition according to claim 31 wherein at least two R1 substituents are methoxy groups.

Oligomers 11, 12 & 13

34. A composition of matter comprising an oligomer of the general structure:



R2 C A R1 B D R3

wherein

the R1 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R2 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R3 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups; and

wherein bonds A and B may be either ortho or para from the pyridyl nitrogen.

35. A composition according to claim 34 wherein at least one R2 substituent is a methoxy group.

36. A composition according to claim 34 wherein two R2 substituents are methoxy groups.

37. A composition according to claim 34 wherein three R2 substituents are methoxy groups.

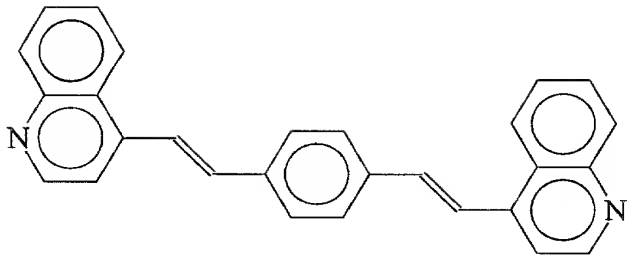
38. A composition according to claim 34 wherein at least one R3 substituent is a methoxy group.

39. A composition according to claim 34 wherein two R3 substituents are methoxy groups.

40. A composition according to claim 34 wherein three R2 substituents are methoxy groups.

Block Co-polymer of Oligomers 1, 2, 3 & 4 (Y only)

41. A composition of matter comprising a block co-polymer of the general structure:



R3/R2 C A R1 B D R4/R5

wherein

the R1 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R2 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R3 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R4 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R5 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

wherein bonds A and B may independently be either ortho, meta or para from one another;

wherein bond C may be either ortho, meta or para with respect to the respective quinoyl nitrogen; and

wherein bond D may be either ortho, meta or para with respect to the respective quinoyl nitrogen;

wherein Y may be a moiety attached at any point on rings R2 and R3, and may be selected from the group consisting of $-(CH_2)_x-$,$-(CH_2)_xO-$, $-O(CH_2)_x-$ and $-O(CH_2)_xO-$ wherein x is an integer in the range of 1 to 15 inclusive; and

wherein n is an integer greater than 1.

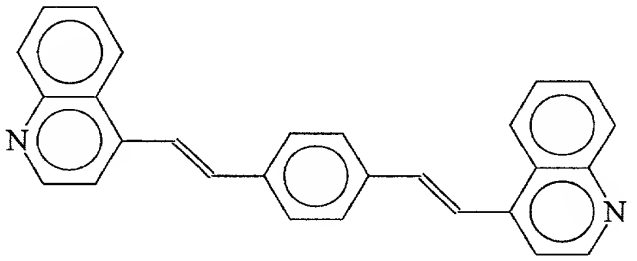
42. A composition according to claim 41 wherein at least one R1 substituent is a methoxy group.

43. A composition according to claim 41 wherein at least two R1 substituents are methoxy groups.

wherein Y may be a moiety selected from the group consisting of $-(CH_2)_x-$,$-(CH_2)_xO-$, $-O(CH_2)_x-$ and $-O(CH_2)_xO-$ wherein x is an integer in the range of 1 to 15 inclusive;

Block Co-polymer of Oligomers 1, 2, 3 & 4 (Y, R & Z)

44. A composition of matter comprising a block co-polymer of the general structure:



R3/R2 C A R1 B D R4/R5

wherein

the R1 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R2 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R3 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R4 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R5 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R6 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

wherein bonds A and B may independently be either ortho, meta or para from one another;

wherein bond C may be either ortho, meta or para with respect to the respective quinoyl nitrogen; and

wherein bond D may be either ortho, meta or para with respect to the respective quinoyl nitrogen;

wherein Y may be a moiety attached at any point on ring R6, and may be selected from the group consisting of $-(CH_2)_x-$,$-(CH_2)_xO-$, $-O(CH_2)_x-$ and $-O(CH_2)_xO-$ wherein x is an integer in the range of 1 to 15 inclusive;

wherein Z may be a moiety bridging any two points on rings R2 or R3 and R6, and may be selected from the group consisting of $-(CH_2)_x-$,$-(CH_2)_xO-$, $-O(CH_2)_x-$ and $-O(CH_2)_xO-$ wherein x is an integer in the range of 1 to 15 inclusive; and

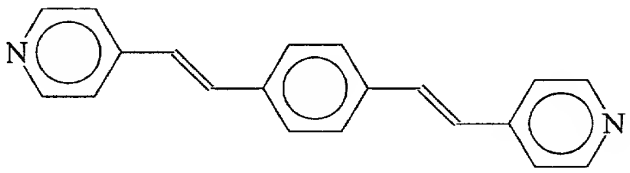
wherein n is an integer greater than 1.

45. A composition according to claim 44 wherein at least one R1 substituent is a methoxy group.

46. A composition according to claim 44 wherein at least two R1 substituents are methoxy groups.

<u>Block Co-polymer of Oligomers 5, 6, 7 & 8 (Y only)</u>

47. A composition of matter comprising a block co-polymer of the general structure:



R2 C A R1 B D R3

wherein

the R1 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R2 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R3 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

wherein bonds A and B may independently be either ortho, meta or para from one another;

wherein bond C may be either ortho, meta or para with respect to the respective pyridyl nitrogen;

wherein bond D may be either ortho, meta or para with respect to the respective pyridyl nitrogen;

wherein Y may be a moiety attached at any point on ring R2, and may be selected from the group consisting of $-(CH_2)_x-$,$-(CH_2)_xO-$, $-O(CH_2)_x-$ and $-O(CH_2)_xO-$ wherein x is an integer in the range of 1 to 15 inclusive;

and

wherein n is an integer greater than 1.

48. A composition according to claim 47 wherein at least one R1 substituent is a methoxy group.

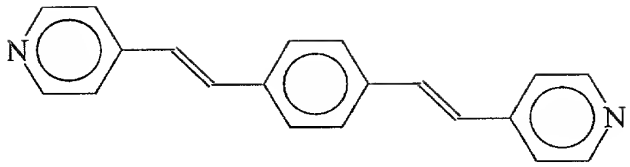
49. A composition according to claim 47 wherein at least two R1 substituents are methoxy groups.

50. A composition according to claim 47 wherein at least one R2 substituent is a methyl group.

51. A composition according to claim 47 wherein at least one R3 substituent is a methyl group.

<u>Block Co-polymer of Oligomers 5, 6, 7 & 8 (Y, R & Z)</u>

52. A composition of matter comprising a block co-polymer of the general structure:



R2 C A R1 B D R3

wherein

the R1 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R2 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R3 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R4 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

wherein bonds A and B may independently be either ortho, meta or para from one another;

wherein bond C may be either ortho, meta or para with respect to the respective pyridyl nitrogen;

wherein bond D may be either ortho, meta or para with respect to the respective pyridyl nitrogen;

wherein Y may be a moiety attached at any point on ring R4, and may be selected from the group consisting of $-(CH_2)_x-$,$-(CH_2)_xO-$, $-O(CH_2)_x-$ and $-O(CH_2)_xO-$ wherein x is an integer in the range of 1 to 15 inclusive;

wherein Z may be a moiety bridging any two points on rings R2 and R4, and may be selected from the group consisting of $-(CH_2)_x-$,$-(CH_2)_xO-$, $-O(CH_2)_x-$ and $-O(CH_2)_xO-$ wherein x is an integer in the range of 1 to 15 inclusive; and

and

wherein n is an integer greater than 1.

53. A composition according to claim 52 wherein at least one R1 substituent is a methoxy group.

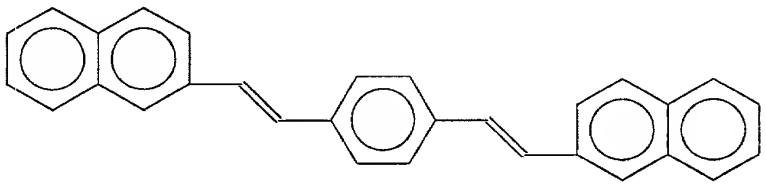
54. A composition according to claim 52 wherein at least two R1 substituents are methoxy groups.

55. A composition according to claim 52 wherein at least one R2 substituent is a methyl group.

56. A composition according to claim 52 wherein at least one R3 substituent is a methyl group.

Block Co-polymer of Oligomers 9 & 10 (Y only)

57. A composition of matter comprising a block co-polymer of the general structure:



R3/R2 C A R1 B D R4/R5

wherein

the R1 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R2 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R3 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R4 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R5 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

wherein bonds A and B may be either ortho, meta or para from one another;

wherein Y may be a moiety attached at any point on rings R2 or R3, and may be selected from the group consisting of $-(CH_2)_x-$, $-(CH_2)_xO-$, $-O(CH_2)_x-$ and $-O(CH_2)_xO-$ wherein x is an integer in the range of 1 to 15 inclusive;

and

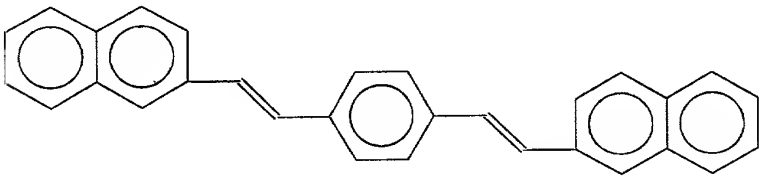
wherein n is an integer greater than 1.

58. A composition according to claim 57 wherein at least one R1 substituent is a methoxy group.

59. A composition according to claim 57 wherein at least two R1 substituents are methoxy groups.

Block Co-polymer of Oligomers 9 & 10 (Y, R and Z only)

60. A composition of matter comprising a block co-polymer of the general structure:



R3/R2 C A R1 B D R4/R5

wherein

the R1 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R2 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R3 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R4 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R5 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

the R6 substituents are independently selected from the group consisting of hydrogen, alkyl groups, alkoxy groups, and aryl groups;

wherein bonds A and B may be either ortho, meta or para from one another;

wherein Y may be a moiety attached at any point on ring R6, and may be selected from the group consisting of $-(CH_2)_x-$,$-(CH_2)_xO-$, $-O(CH_2)_x-$ and $-O(CH_2)_xO-$ wherein x is an integer in the range of 1 to 15 inclusive;

wherein Z may be a moiety bridging any two points on rings R2 or R3 and R6, and may be selected from the group consisting of $-(CH_2)_x-$,$-(CH_2)_xO-$, $-O(CH_2)_x-$ and $-O(CH_2)_xO-$ wherein x is an integer in the range of 1 to 15 inclusive; and

and

wherein n is an integer greater than 1.